

**Airi**



**nanotec IT**

**WEBINAR ENEA:  
Attività regolatoria sui nano materiali:  
punto della situazione e prospettive**

**28 gennaio 2014**

**L'importanza industriale dei nanomateriali**

**Andrea Porcari, Elvio Mantovani**

**AIRI/Nanotec IT**

# About us

## AIRI Profile

- Founded in 1974, based in Rome
- Focal point for some 100 members active in R&D (large companies, SMEs, public research)

## AIRI/Nanotec IT profile

- Created in 2003 as a branch of AIRI
- Focal point for the key Italian players in nanotech and other Key Enabling Technologies



**International reach: AIRI has been involved in EU projects, as coordinator or partner, in FP5, FP6, FP7 (NMP, SiS)**

**Mission:**  
**Sustain industrial research and innovation**  
**to enhance the competitive position of the Country**

- **Innovation in Horizon 2020**
- **International perspective**
- **The national scenario**
- **Conclusions**

# The drivers of EU industrial growth (Horizon 2020)

HealthCare  
and  
Wellbeing

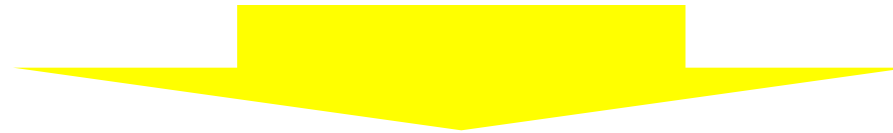
Secure,  
clean,  
efficient  
energy

Smart, green  
and  
integrated  
transport

Climate,  
environment,  
resource  
efficiency,  
raw materials

Inclusive,  
innovative,  
reflective  
societies

Secure  
societies



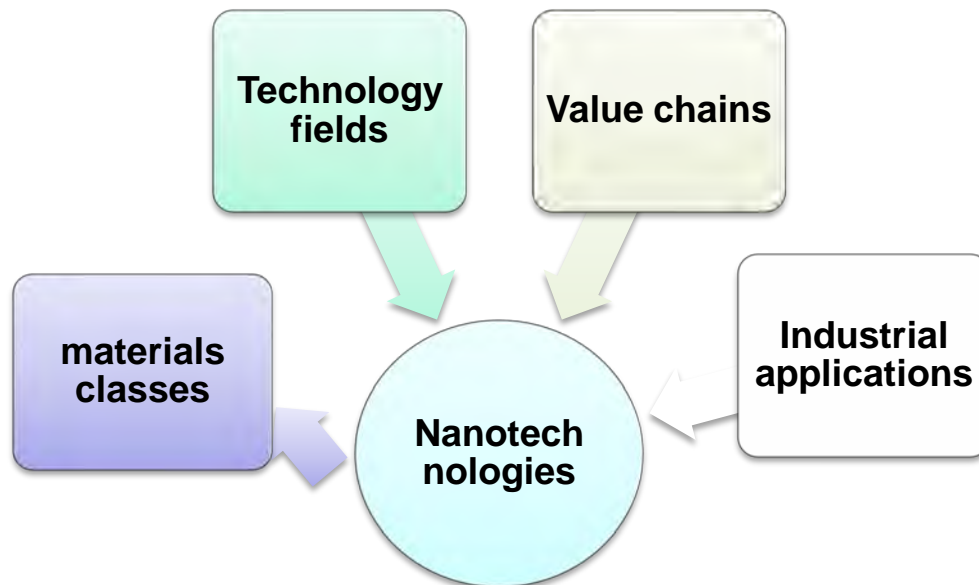
## KEY ENABLING TECHNOLOGIES

- **Nanotechnologies**
- **Advanced Materials**
- **Industrial Biotechnology**
- **Advanced Manufacturing Systems**
- **Photonics**
- **Micro and Nanoelectronics**

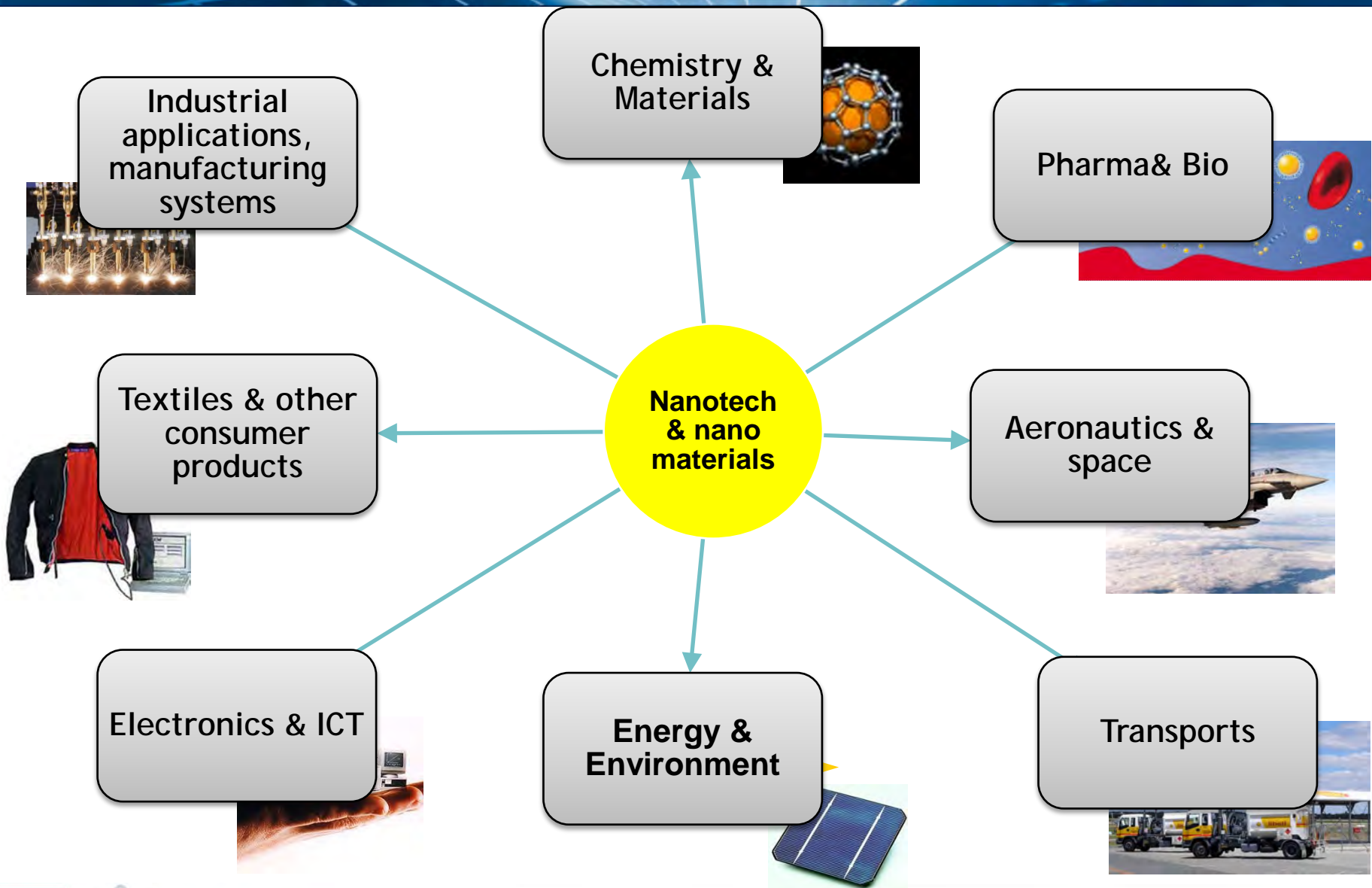
(H2020 AREA:  
LEIT - NMP+B)

# Nanotech as cross-cutting enabler

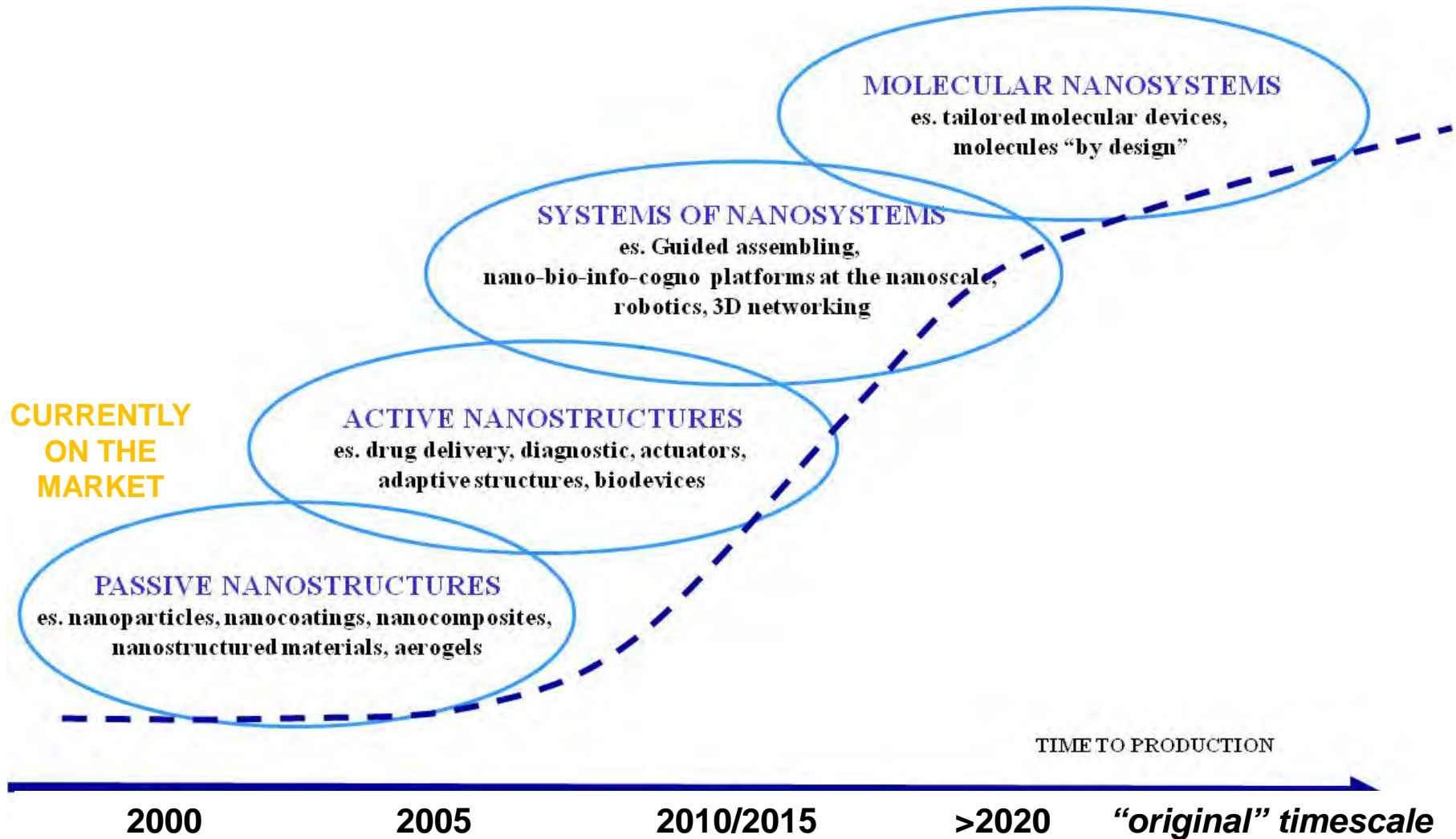
- Nanotechnologies are transversal to the other 5 KETs
- It's a new way of manufacturing, encompassing all industrial sectors. An enabler along the entire value chain
- There is no single nanotechnology industry



# The impact of nanotechnologies & nanomaterials

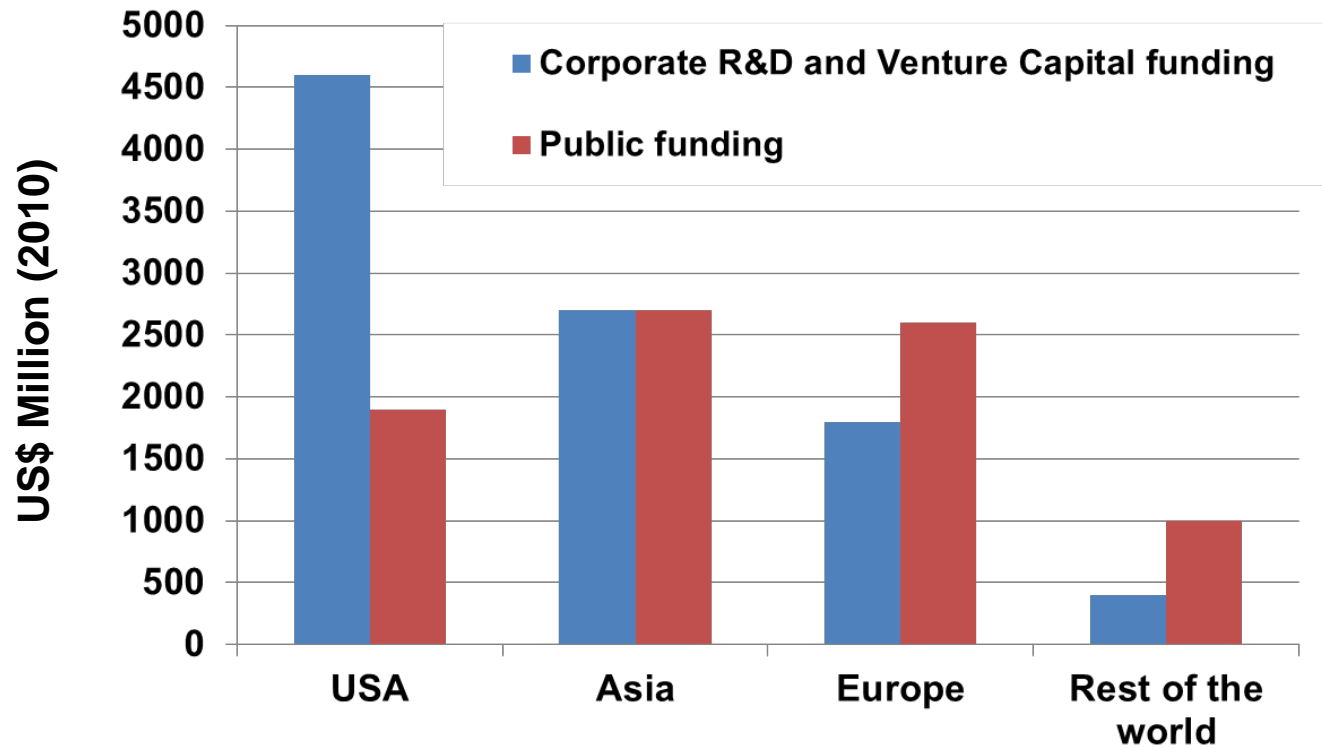


# The “S” curve of nanotechnologies (start of industrial prototypes and commercialization)



Elaborazione AIRI/Nanotec IT su dati M.C. Roco ( NSF)

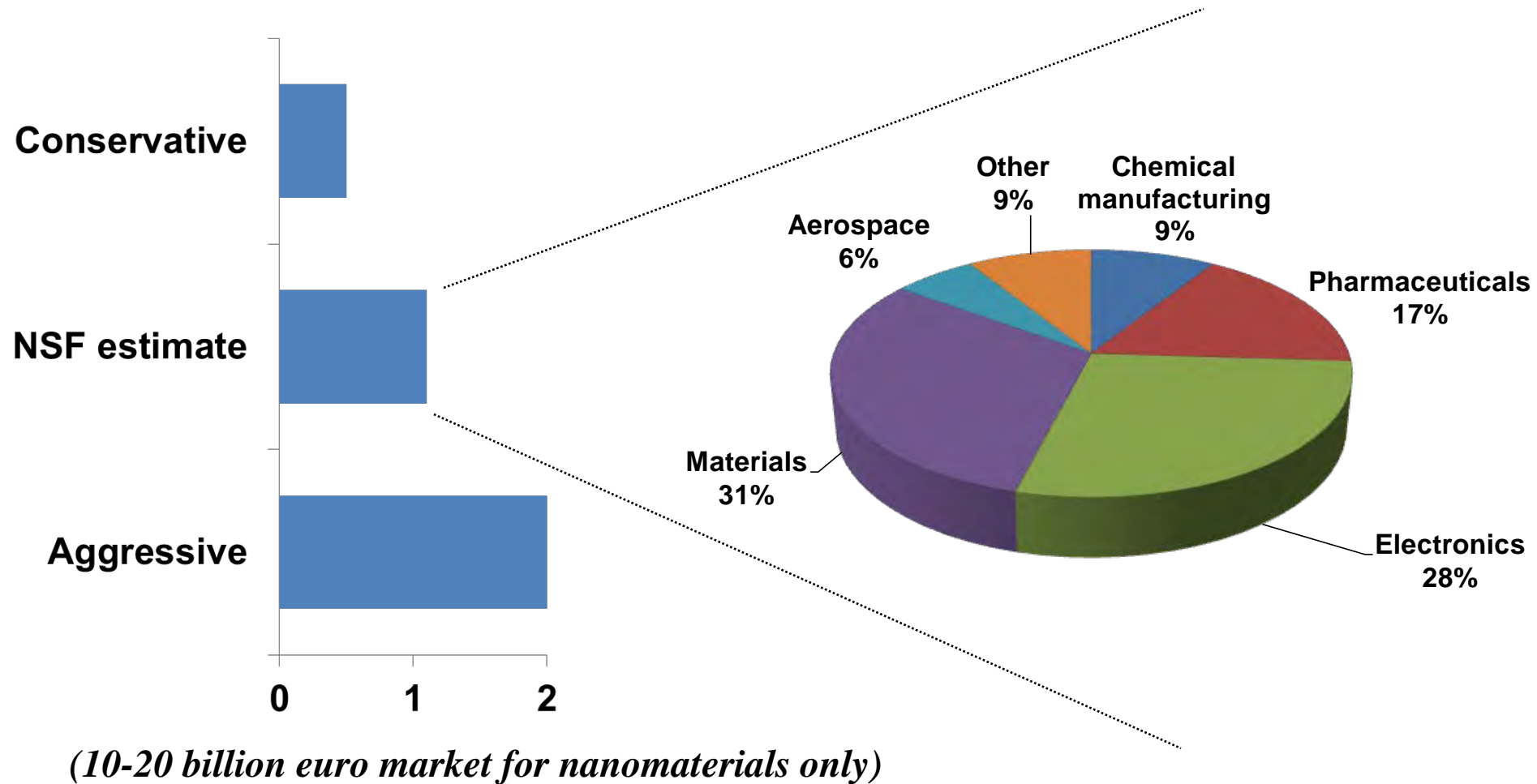
# Public and private funding for nanotechnology



**Nanotechnology R&D funding has been growing at a steady pace, to reach in 2010 some \$19 billion globally. From 2010 Corporate funding overtook government**

Origin: Lux Research and other sources

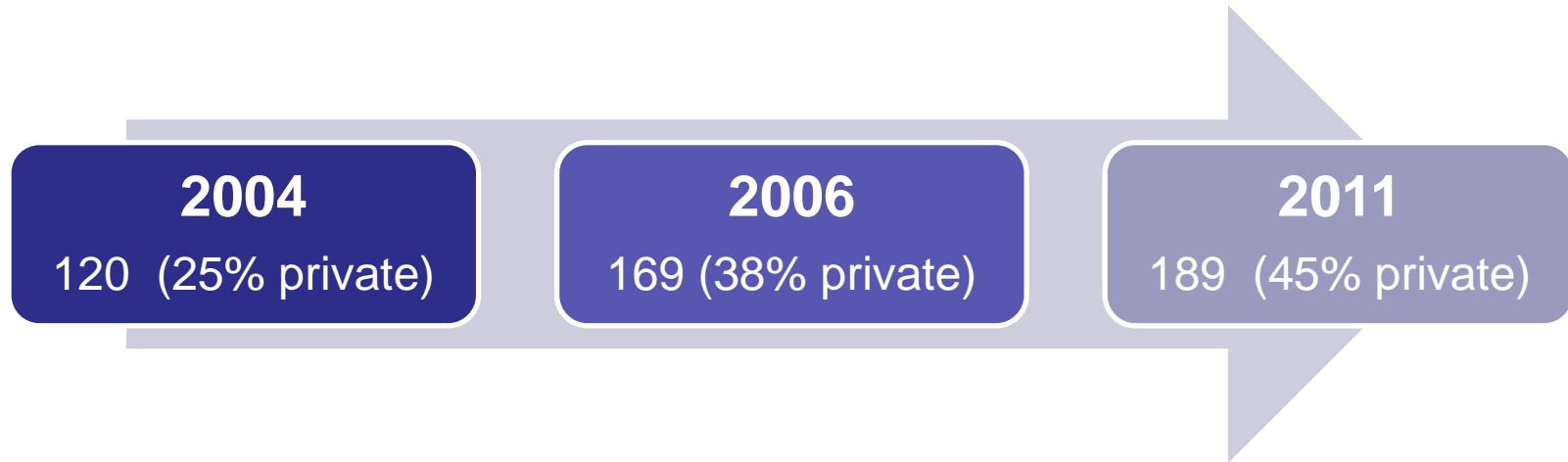
# Estimated global market of nano-related products at 2015 (total in 2009: \$224 billion)



Origin: Tokamanis, KET Open Day on Nanotechnologies, 27 Oct.2010

- **Innovation in Horizon 2020**
- **International perspective**
- **The national scenario**
- **Conclusions**

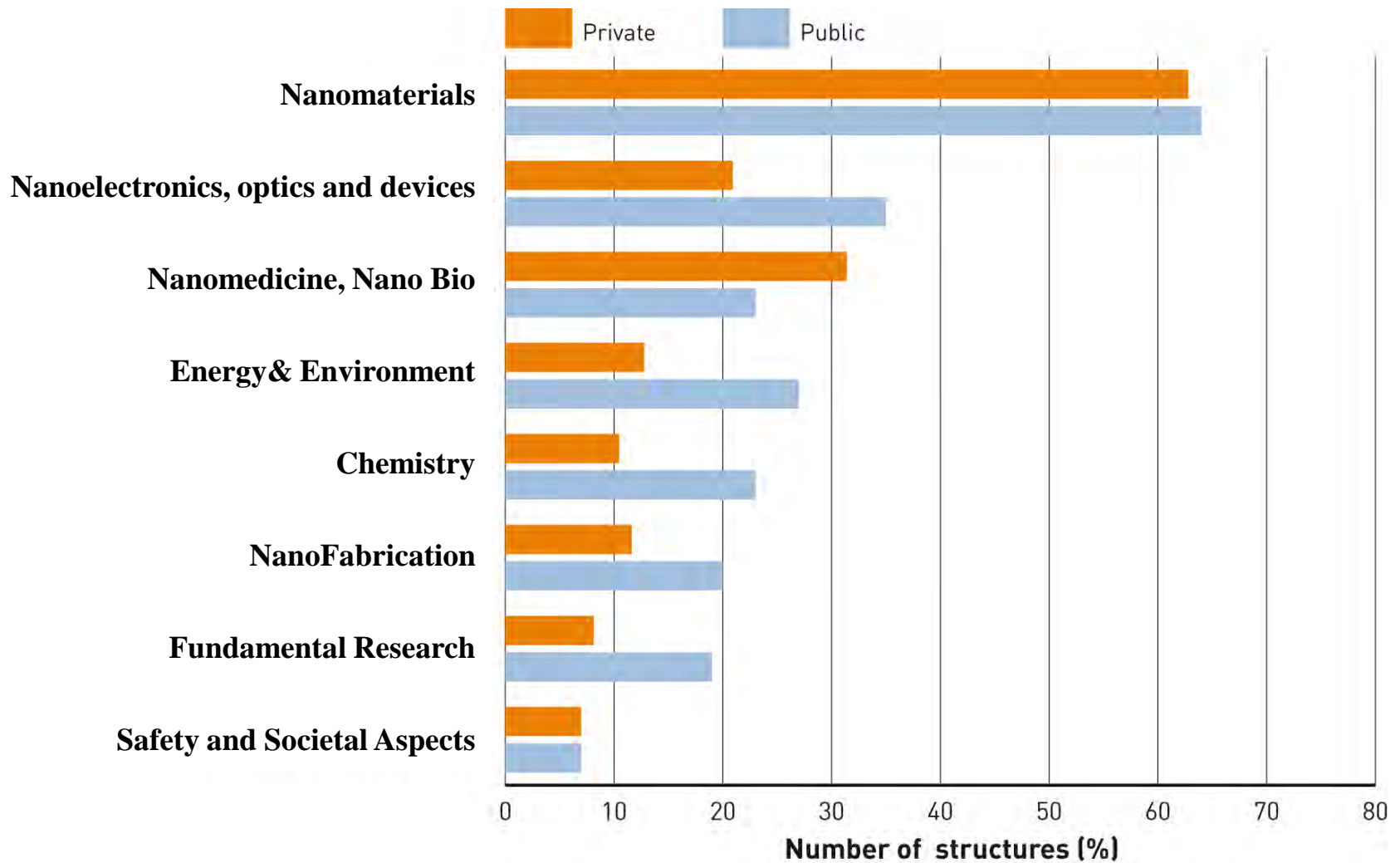
# Nanotech in Italy (from AIRI/Nanotec IT Census)



- **Number of players is steadily increasing. Private players main responsible of the growth**
- **More than 4000 researchers involved (equally divided between public and private)**

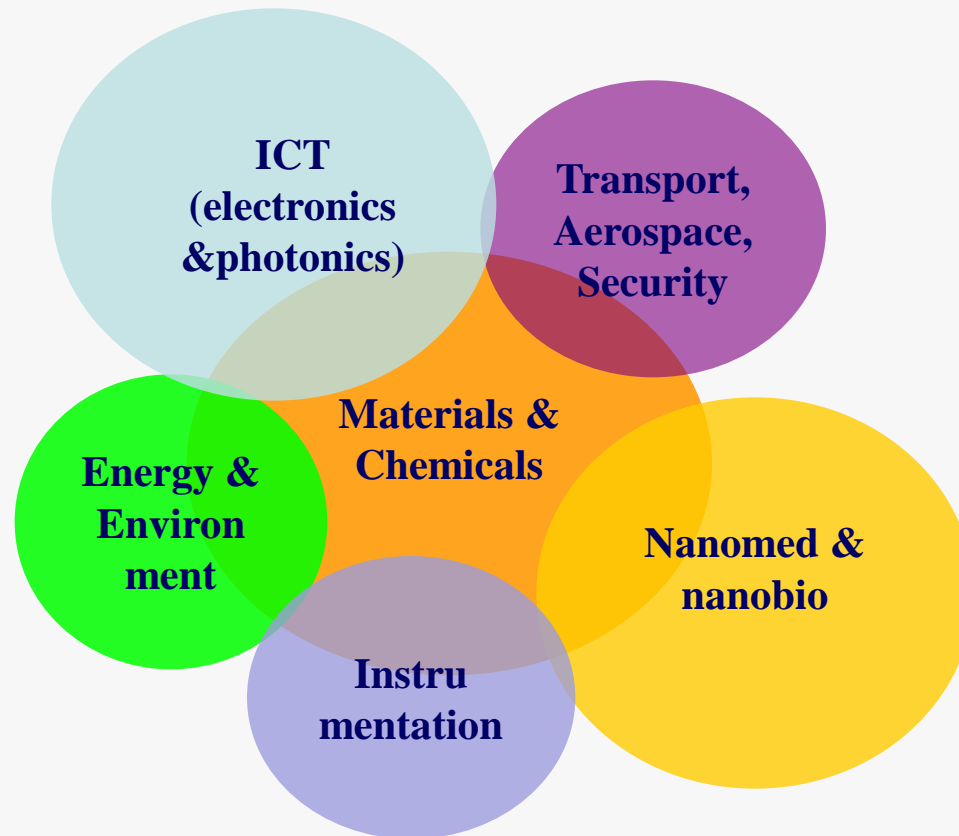
(\* **Structures/organisations that answered the Census**)

# Spectrum of R&D activities



# Focus of the Industry

(market sectors of reference)



• **Large companies** are normally focused mainly on their core business. All major Italian companies are involved in nanotech.

• **SMEs** tend to look at a larger variety of potential applications in more than one segment of the market. The number of SMEs is growing steadily.

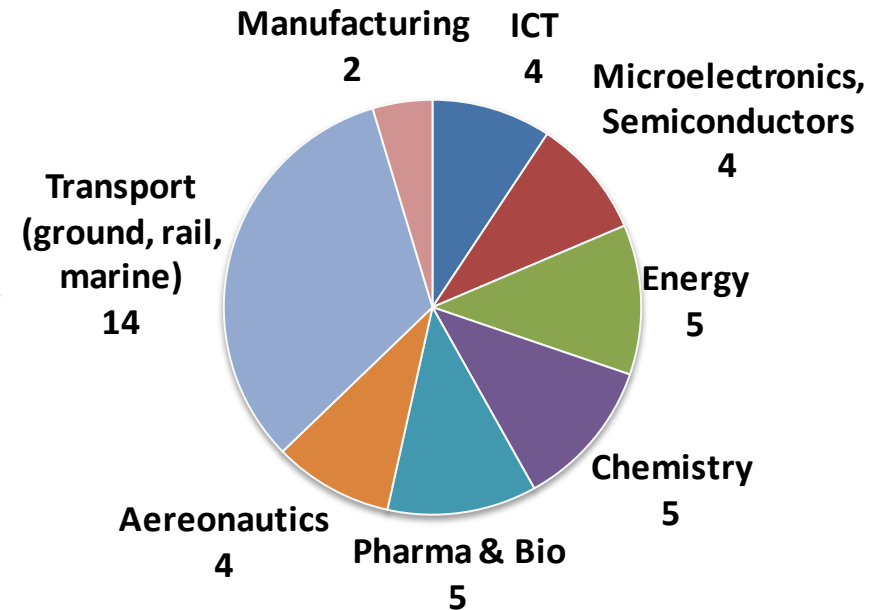
# Nanotechnologies for national industrial innovation priorities



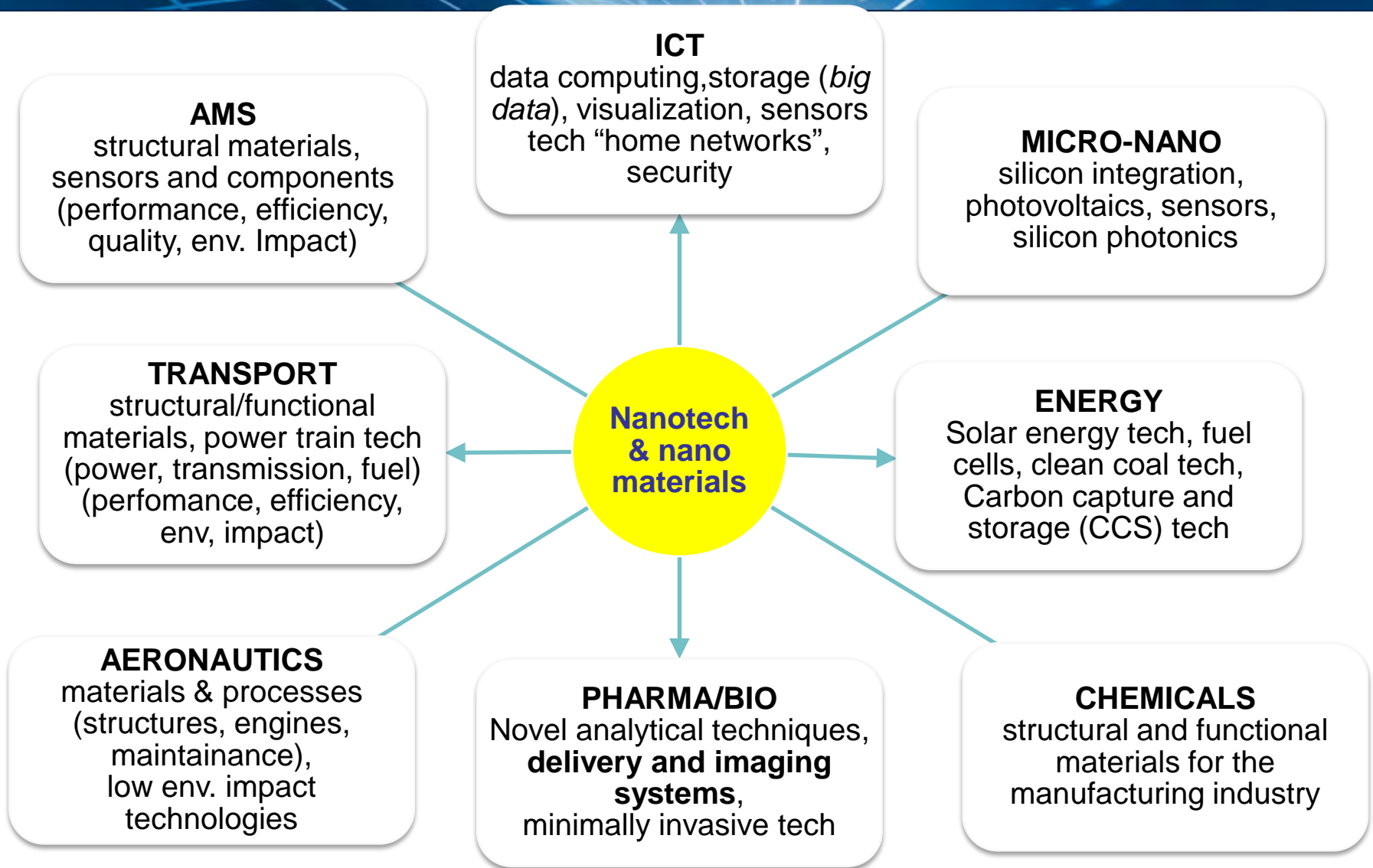
## Le Innovazioni del prossimo futuro: Tecnologie prioritarie per l'Industria Italiana, 8° edition, 2012

→ Key Enabling Technologies contribute to about 80% of the 84 priority tech on the 8 sectors identified

**Nanotechnologies contributes to all sectors and more than 50% of the priority technologies**



# Nanotech for national industrial innovation priorities

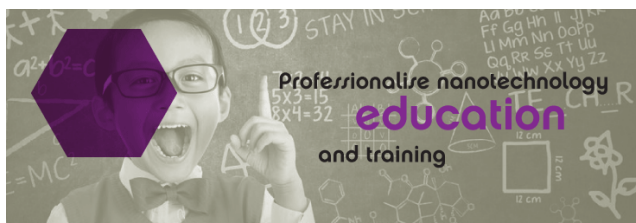


Origin: AIRI Working Group on KETs: <http://www.airi.it/attivita-ed-eventi/gruppi-di-lavoro-e-comitati/key-enabling-technologies/>

# CONCLUSIONS

- **Still early stage of development, small market volume materials**
- **Increasing role to realise improved intermediates and systems components**
- **Strong potentials, overall in established industries in value added value chains (materials, electronics, transport, pharma) and consumer markets**
- **No unique nanotech industry/market: cooperation between institutions, industry and public research is fundamental to propel their use.**
- **Risk-benefit to be evaluated along specific value chains in their respective appropriate use categories**
- **Responsible Research and Innovation is mandatory for their success**

# Developing innovative outreach and dialogue on responsible nanotechnologies in EU civil society



**Engaging with:  
policy-makers, researchers,  
industry, students  
and education institutes,  
civil society, consumers,  
trade unions**

**Survey on RRI and students  
competitions to start soon  
(also Italian language)**

[www.nanodiode.eu](http://www.nanodiode.eu)



# **GRAZIE PER L'ATTENZIONE!!**

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